Chapter 4:

Developing Function-based Interventions

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(Based on an article from Loman, Rodriguez, & Borgmeier, 2014)

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This chapter presents a practical guide for the use of research-based critical features to design positive behavioral interventions based on the reasons why students engage in problem behaviors (i.e., the function of student behavior). Research-based critical features of function-based supports for school personnel to use data from functional behavioral assessments (FBA) to guide the development of individualized behavior support plans are presented. Two case examples will illustrate the critical features for developing function-based supports.

Function-based supports are individualized interventions developed through the process of conducting an FBA (Carr et al., 2002). The FBA process involves interviews, rating scales, and direct observations conducted by trained school professionals. A mnemonic that has been used to outline the steps in FBA process is DASH (Define, Ask, See, Hypothesize). To start the FBA process, a behavior must be operationally **defined** (it must be observable and measurable). The next step is to **ask** people close to the student and the student (when possible) about what triggers and reinforces the problem behavior. Then, a trained school professional conducts an observation of the student (**See)** in the identified routine. Finally, a summary or **hypothesis** is made regarding variables affecting the student's behavior.

Based on data collected in the FBA, an antecedent-behavior-consequence (A-B-C) sequence is outlined by a summary statement that specifically identifies: (a) when and where problem behavior occurs and the environmental variables that consistently

trigger problem behavior (i.e., context and antecedents); (b) an operational definition of the problem behavior; and (c) the maintaining consequences that follow the problem behavior(s) suggesting why a student engages in the identified problem behavior (i.e., function; for a more comprehensive review of how to conduct FBA see Crone & Horner, 2003; or O'Neill et al., 1997). Function-based supports are designed using the FBA summary statement to guide the development and/or selection of interventions that prevent problem behavior while promoting desired outcomes for students.

Since FBA was mandated in 1997, several books and manuals have been published with the intent to teach function-based interventions (e.g., Chandler & Dahlquist, 2010; Crone & Horner, 2003; O'Neill et al., 1997). Additionally, many states and school districts have developed training models to teach school-based personnel to conduct FBAs (Browning-Wright et al., 2007). These texts often present "critical features" for developing behavioral supports for students with the most significant behavioral concerns. However, this chapter will heed the call from the field to "scale down" (Scott, Alter, & McQuillan, 2010) the focus to the basic features of function-based supports to guide the development of interventions for students with moderate behavioral problems. Therefore, setting events (events occurring outside of the school that may affect student behavior) and corresponding strategies have intentionally been omitted from the critical features presented to emphasize interventions that school staff may implement to immediately improve the environment, curriculum, and instruction affecting student behavior.

Resources for Conducting a Functional Behavioral Assessment (FBA)

A number of resources for conducting interviews and observations are available via the Internet. For example, www.functionbasedthinking.com is a comprehensive website with a training manual, interview and observation tools, and interactive web lessons based on the research-based Basic FBA process (Loman, Strickland-Cohen, & Borgmeier, 2013). At this website, the ***interview tool*** that is taught is the modified Functional Assessment Checklists for Teachers (FACTS; March, Horner, Lewis-Palmer, Brown, Crone, & Todd, 1999) available at: https://sites.google.com/a/pdx.edu/functionbasedthinking/home/fba-bsp-instructions-and-forms. Another useful interview tool for identifying the function of behavior that is available online is the Motivation Assessment Scale (MAS; Durand, 1990: http://www.nsseo.org/wp-content/uploads/MAS.pdf). The ABC Recording Form (Loman, 2009) is taught and used as an observation procedure within the Basic FBA process: https://sites.google.com/a/pdx.edu/functionbasedthinking/home/fba-bsp-instructions-and-forms. Another popular tool is the Scatterplot that helps teachers track student behavior across times and days. This scatterplot tool is available at: http://www.pbisillinois.org/curriculum/Course-Materials/t200fi-individualized-student-support-via-complex-fba-bip-wraparound-for-students-with-tertiary-level-needs/T200fi-ScatterPlot-ILPBIS-9.3.08.doc?attredirects=0. For more information on the FBA process, review the training materials on www.functionbasedthinking.com and http://www.pbisillinois.org/trainings/fba-bip-training-materials. The PBIS Illinois website offers links to past webinars presenting information on conducting an FBA and designing function-based supports.

ABC's of Function-Based Supports

A function-based support plan should include components that (a) address antecedent triggers to prevent problem behavior, (b) teach alternative and desired behaviors, and (c) identify appropriate responses to desired and problem behaviors. Figure 1 illustrates the A-B-C sequence and how function plays a pivotal role in designing prevention strategies, teaching alternative or replacement behaviors, and responding to both desired and problem behaviors. In Figure 1, antecedents are defined as events or stimuli that immediately precede or trigger problem behavior. Behavior is the observable behavior of concern (i.e., problem behavior). Consequence is defined as the consistent response to the problem behavior that reinforces the behavior. This logic is based on applied behavior analytic literature (e.g., Horner, 1994), suggesting function is where problem behavior intersects with the environment to affect learning. Given this logic, an individual exhibiting problem behaviors has learned: "Within a specific situation 'X' (context), when 'A' (antecedent is present) if I do 'B' (problem behavior), then 'C' (the maintaining consequence) is likely to occur." Through experience and repetition, the individual learns that the problem behavior is effective or "functional" for meeting their needs. Therefore, the individual is likely to continue to engage in the problem behavior under similar circumstances. Based on this model, the function of an individual's behavior should guide the selection of each component intervention (prevention, teaching, and consequence strategies) within a positive behavior support plan.

Using Assessment to Guide Function-Based Supports

Function-based supports are developed using a clear, detailed summary statement from the FBA (outlining the antecedents, behaviors, and maintaining consequences within a specific routine/context). This summary statement should be framed within a specific routine or context because similar behaviors often serve different functions for the student in different contexts. For example, a student may predictably hit a peer during round robin reading so he can be sent to the back of the room to avoid reading failure in front of peers, and he may also regularly hit a peer at recess so the peer quits teasing him. Once the team has established a clear understanding of the problem behavior and the environmental features predicting and maintaining problem behavior in a given context, then they can develop function-based interventions.

Above the dotted line in Figure 1, a Competing Behavior Pathway (O'Neill et al., 1997) visually frames the FBA summary statement to guide function-based support planning. The FBA summary statement or hypothesis forms the center of the Competing Behavior Pathway (the antecedent(s), problem behavior(s), and maintaining function of student behavior) for a prioritized routine or context. Within the Competing Behavior Pathway the summary of behavior is used to inform identification of the alternative behavior and desired behavior. Each is defined in Figure 1.

A completed example of the FBA summary statement in Figure 2 should read, "During math (routine/context) when Jackson is asked to work independently on a double-digit multiplication worksheet (antecedent), he fidgets, gets off task, uses foul language, slams his book, and picks on peers (problem behavior), which typically results in the teacher asking Jackson to leave the room and go to the principal's office

(consequence). It is hypothesized that Jackson's behavior is maintained by escaping the independent math worksheet (function; the "why" or "pay-off")."

The completed FBA summary statement for Sophia in Figure 3 should read, "During carpet time (routine/context) when the whole class is receiving instruction and Sophia is asked to sit quietly in her carpet square for more than five minutes (antecedent), Sophia fidgets and disrupts the class by yelling or wandering around the room (problem behavior), which typically results in Sophia's teacher chasing her around the room, asking her to be quiet, and scolding her about how to behave (consequence). Given this information, it is hypothesized that Sophia's disruptive behaviors are maintained by obtaining teacher attention (function; the "why" or "student pay-off")."

Selecting Function-Based Interventions

Using the FBA summary statement, the first step to developing a function-based support plan involves identifying the (1) desired behavior (long-term goal) and (2) the natural reinforcers resulting from this behavior (what typical students receive for performing this behavior; labeled 1 and 2 in Figures 2, 3, & 4). The next step is identifying an alternative behavior (short-term goal; labeled 3 in the figures) to achieve the same function as the problem behavior (Carr, 1997). Once the alternative and desired behaviors have been identified, the focus shifts toward the identification of function-based interventions. Following identification of the alternative and desired behaviors, the next focus is teaching these behaviors. The individual should be provided explicit instruction of how and when to use the alternative behavior appropriately as well as explicit instruction of the skills (or progression of skills)

necessary to engage in the desired behavior (O'Neill et al., 1997). Explicit instruction of the alternative behavior and skills supporting the use of the desired behavior should be paired with antecedent and consequence interventions. Antecedent interventions modify the events or stimuli triggering the problem behavior to prevent problem behavior and concurrently prompt the alternative and/or desired behaviors. Then, procedures for reinforcing alternative behaviors and desired behaviors should be identified in such a way that the student receives valued reinforcement based on reasonable expectations and time frames. Finally, responses to redirect problem behavior and eliminate or reduce the pay-off for problem behavior should be identified. The specific critical features of each of these components of a function-based support plan will be presented in the following sections and are summarized in Figure 2.

Critical Features of Function-Based Alternative Behaviors

Begin the function based support plan by developing a clear definition of what the student should do (versus what not to do). Very often a skill deficit (e.g. academic, social, organizational, communication) prevents the student from being able to regularly perform the desired behavior (long-term goal) right away. In Jackson's example (see Figure 2), the desired behavior is for him to independently complete double-digit multiplication problems, but he currently lacks the skills to perform this task. Until this academic skill deficit is bridged, he is more likely to need a way to avoid or escape a task he cannot complete. Jackson is likely to continue to engage in or escalate problem behavior to avoid the difficult math task, *unless* he is provided another way (alternative behavior) to have this need met.

An alternative behavior is an immediate attempt to reduce disruption and potentially dangerous behavior in the classroom. The alternative behavior should be viewed as a short-term solution to reduce problem behavior that provides a "window" for teaching and reinforcing the skills necessary to achieve the long-term goal of the desired behavior(s). To facilitate decreased problem behavior, it is important the alternative behavior meets three critical criteria: ***the alternative behavior must serve the same function (or purpose) as the problem behavior*** (Sprague & Horner, 1999), ***be as easy as or easier to do than the problem behavior*** (Horner & Day, 1991) and ***be socially acceptable*** (Haring, 1988). In the early stages of behavioral change it is recommended to closely adhere to these criteria as one works to convince the student to stray from the well-established habit and pathway of the problem behavior and commit to a new alternative behavior to access the desired reinforcer. Over time, the alternative behavior will be amended to increasingly approximate the desired behavior (long-term goal). In the initial stages, however, it is important to ensure that the student perceives the alternative behavior as an efficient way to have their needs met or they are not likely to give up the problem behavior.

According to the FBA summary statement for Jackson (Figure 2), he fidgets, gets off task, displays foul language, slams books, and picks on peers to escape difficult math tasks. The alternative behavior for Jackson must allow him to escape the difficult math task (serve the same function as the problem behavior). Asking for a break *addresses this function* and requires less energy than the series of tantrum behaviors described earlier (*easier*). Additionally, requesting a break is more *socially*

acceptable than throwing a tantrum by using foul language and throwing materials in class.

In Figure 3, the FBA summary indicates that Sophia is disrupting the class to access teacher attention. A reasonable long-term behavioral goal for Sophia is to quietly listen during carpet time, participate when it is her turn, and seek attention at appropriate times. The first step to help Sophia toward her long-term goal is to select an alternate behavior that meets the three critical features. First, the alternate behavior should *serve the same function as the problem behavior*. In this case, Sophia is engaging in disruption to access teacher attention. A more appropriate way to request teacher attention is to raise her hand. Raising her hand to request attention should be *as easy as, or easier, to do* than the disruptive behaviors, and it is a *socially acceptable behavior* according to Sophia's teacher.

The main goal of a function-based support plan is overcoming an established habit and pattern of learning in which the individual uses a problem behavior because it is functional (i.e., achieving a pay-off). The initial alternative behavior should be markedly easier to do and more efficient in its pay-off than the problem behavior. Otherwise, the individual may be less likely to abandon the "tried and true" problem behavior for the new alternative behavior.

Teaching the Alternative Behavior, Desired Behavior, and Approximations

Teaching is a critical component of all function-based interventions. Explicit instruction is encouraged to promote fluency and use of the alternative behavior and the desired behavior. Explicit instruction increases the likelihood that the individual understands when, how, and where to use the alternative behavior, as well as the pay-off for using

the alternative behavior (i.e., the same functional outcome as the problem behavior). Ideally, instruction occurs with the person(s) and in the setting in which use of the alternative behavior will occur. While the alternative behavior is a nice starting point, it is a short-term solution, and over time the focus should shift toward increasing use of the desired behavior.

When teaching to promote use of the desired behavior(s), it is important to understand the extent of the discrepancy between a student's current skills and the desired behaviors. If there is a large discrepancy, it may be necessary to identify a progressive instructional plan including instruction of necessary prerequisite skills and a progression of approximations toward the desired behavior. The progression of approximations toward the desired behavior would increasingly challenge the student to take greater responsibility (increasing independence and self-management) to access the reinforcers. Over time, instruction in the skills promoting use of the desired behaviors would provide increasing access and exposure to natural reinforcement for engaging in the desired behavior.

For example, in Jackson's case, we could conduct an assessment to identify Jackson's specific skill deficits and instructional needs in math. Then the behavior specialist would teach Jackson to use a picture card to request to "take a break" appropriately instead of using foul language and slamming books to avoid work. While Jackson begins to break the habit of using the problem behavior, we will provide instruction in multiplication and the prerequisite skills necessary for Jackson to be able to perform the math worksheets independently (desired behavior). As Jackson builds mastery in the necessary math and multiplication skills, the need to rely on the alternative behavior to avoid tasks should decrease. Instruction to address the

underlying math deficits should ultimately eliminate the need for student problem behavior.

As Jackson demonstrates fluency with requesting breaks appropriately and refraining from slamming his hand on the desk and tearing papers, we would increase the expectation for requesting breaks. Instead of giving breaks freely, we might limit Jackson to three break tickets during math, and if he has any leftover tickets he can cross off two problems from his worksheet. As Jackson's math skills increase, the expectation may be that he finishes at least five problems before he can request a break. When first increasing expectations and student responsibility, it is often necessary to increase reinforcement for engaging in the desired behavior to motivate the student to take the next step. As Jackson's math skills increase and he can complete more problems, he is also accessing the natural reinforcement of pride in work completion. At first it is important to make this explicit by praising student progress, effort, and work completion by saying such things as, "You should be really proud of how many problems you completed today."

In Sophia's case, she would need explicit instruction and practice in raising her hand and requesting attention. Requesting attention appropriately and reducing disruption are important, but over time it will be important to increase time between requests for attention to a schedule that is reasonable for the teacher. The next approximation may be to systematically reduce the number of requests for attention (three per carpet time to two, etc.). Additional social skills instruction on appropriate ways (e.g. conversation starters, eye contact, smiling) and times to obtain adult attention should increase Sophia's access to positive social attention during non-instructional times. I ncreasing specific social skills paired with incentives (e.g., earning

a game with an adult) for fewer requests for attention during instructional times will help Sophia increase her endurance during instructional times and reduce her need to solicit attention so frequently. Increased positive interactions and relationships with adults (the natural reinforcers) should increase and maintain social skill use.

Critical Features of Function-Based Prevention Strategies

The next step in developing a function-based support plan is to determine strategies to prevent the problem behavior. These include antecedent strategies that alter the triggers to problem behavior. The literature suggests critical features for prevention strategies that: (a) ***directly address the features of the antecedent (e.g., task, people, environmental conditions) that trigger the problem behavior*** (Kern, Choutka, & Sokol, 2002) and (b) ***directly address the hypothesized function of the problem behavior*** (Kern, Gallagher, Starosta, Hickman, & George, 2006).

Jackson (Figure 2, column A) is engaging in problem behavior when presented with math worksheets (antecedent) to avoid difficult math tasks (function). Prevention strategies could include reducing the difficulty of his assignment by interspersing easier problems with addition and subtraction problems with which he can be more successful. When this is done, his need to engage in problem behavior to escape the task is prevented or reduced. **A number of other prevention strategies have been shown to address escape-motivated behaviors such as:** (a) **to pre-correct desired behavior** (Wilde, Koegel, & Koegel, 1992); (b) **clarify or simplify instructions to a task or activity** (Munk & Repp, 1994); (c) **provide student choices in the activity** (Kern & Dunlap, 1998); (d) **build in frequent breaks from aversive tasks** (Carr et al., 2000); (e) **shorten tasks** (Kern & Dunlap, 1998); (f) **intersperse easy tasks with difficult tasks**

(Horner & Day, 1991); and (g) **embed aversive tasks within reinforcing activities** (Carr et al., 1994). Choosing the most appropriate intervention will depend on the specific antecedent and function of behavior identified in the FBA summary (other possible strategies based on the function of student behavior are presented in Tables 1 and 2).

Sophia (Figure 3, column A) engages in disruptive behavior when asked to sit quietly and listen with limited adult attention for five or more minutes at a time (antecedent) to obtain teacher attention (function). Prevention strategies directly linked to this function would provide Sophia with frequent teacher attention prior to problem behavior, such as a check-in during transition to carpet time, giving Sophia jobs as teacher helper, and seating her near the teacher so it is easier to periodically (every three to four minutes) provide her with attention. These strategies directly address the antecedent by reducing longer spans of time in which Sophia is not receiving adult attention. Prevention strategies that have been effective at addressing attention-maintained behaviors include: (a) use of peer-mediated instruction (Carter, Cushing, Clark, & Kennedy, 2005); (b) self-management strategies where student monitors their behavior to recruit feedback from the teacher (Koegel & Koegel, 1990); (c) provide assistance with tasks (Ebanks & Fisher, 2003); and (d) provide the student with the choice of working with a peer or teacher (Morrison & Rosales-Ruiz, 1997). Once again, choosing the most appropriate prevention strategies will require a match to the specific antecedent and function of behavior identified in the FBA summary statement.

Critical Features of Function-Based Consequence Strategies

Once teaching and prevention strategies have been selected, the next critical step is to determine strategies to reinforce appropriate behavior and minimize or eliminate payoff for problem behavior. Although many people associate the word "consequence" with a punitive response, in behavioral terms consequences can be punitive or pleasant. Within a Positive Behavior Support (PBS; Carr et al., 2002) framework, the goal is to minimize the use of aversive consequences. The function (or purpose) of the student's behavior should guide the selection of strategies to reinforce appropriate behaviors and minimize payoff for problem behaviors.

Reinforcing Appropriate Behavior. There are four critical features for identifying effective reinforcers. The first two are broad strategies to ***reinforce the alternative behavior*** (Petscher, Rey, & Bailey, 2009) and to ***reinforce desired behavior or approximations toward the desired behavior*** (Wilder, Harris, Reagan, & Rasey, 2007). More specific considerations when setting up effective interventions to encourage behavior are to ***identify reinforcers valued by the student*** (Horner & Day, 1991) and to set ***reasonable timeframes and expectations for the student to encourage behavior*** (Cooper, Heron, & Heward, 2007). In our experience there are two common mistakes in using reinforcement. The first mistake is selecting incentives that are not valued by the student. The second common mistake is setting goals, expectations, and time frames that are not reasonable for the student to achieve. If we identify a desired reward but only offer it to the student for engaging in perfect behavior, we are oftentimes setting the student up for failure rather than motivating success. What is reasonable for a student depends on the student's current performance as well as the discrepancy between this skill and the desired behavior.

Often, we must begin by reinforcing approximations of the desired behavior in smaller intervals of time before increasing to closer approximations of the desired behavior over longer spans of time.

For Jackson, when he asks for a break (alternative behavior), it is important to reinforce this behavior by providing a break quickly. If Jackson does not learn that asking for a break is a more effective and efficient way to get his needs met than the fidgeting, slamming his hand on the desk, and tearing his papers, he will quickly resort back to the problem behaviors that have worked so effectively in the past. Additionally, he may earn a "free choice pass" if he completes a reasonable, specified number of problems (desired behavior). If Jackson previously has only started one or two problems on a worksheet, it is probably not a reasonable expectation that tomorrow he will earn a reward for completing the entire worksheet. A more reasonable goal might be that he attempts five problems tomorrow to earn the incentive, a more attainable approximation of the desired behavior. By combining the option for Jackson to take a break (alternative behavior), modifying the task to make it easier (antecedent), and adding the incentive of the homework pass (reinforcement), Jackson's team creates integrated supports that set him up to be successful. The supports incentivize the desired behaviors and reduce Jackson's need to avoid difficult tasks through inappropriate behaviors.

For Sophia, when she raises her hand to request teacher attention (alternative behavior), it is important to provide teacher attention (reinforcement) immediately. Additionally, Sophia should receive more frequent attention for engaging in appropriate, on-task behavior. She can also earn special time with the teacher if she participates appropriately for the duration of carpet time and is appropriate even when

not called on every time she raises her hand (desired behavior). Encouraging Sophia with a highly valued reinforcer like "special teacher time" can be an effective motivator to challenge her to progress through increasing approximations of the desired behavior, as long as the expectations in this progression remain reasonable for Sophia.

Responding to Problem Behavior. Despite our best efforts to set up students and encourage them to engage in appropriate behavior, it is likely the student will revert to problem behavior from time to time. Therefore, a function-based intervention should include specific strategies for responding to problem behavior. These strategies are ***redirecting to the alternative behavior at the earliest signs of problem behavior*** (Kern & Clarke, 2005) and ***actively limiting or eliminating the pay-off for problem behavior*** (extinction; Mace et al., 1988). At the earliest signs that the student is engaging in or is likely to engage in the problem behavior, the first and best option is to briefly remind the student to engage in the alternative behavior and then reinforce the alternative behavior according to the plan. Additionally, it is critical if the student does not respond to the prompt, the team has identified *a response to the problem behavior that does not inadvertently reinforce it*.

In Jackson's case, at the earliest sign of problem behavior (e.g. off-task behaviors, fidgeting), his teacher should remind him he could request a break (redirection). When Jackson asks for a break appropriately, the teacher should quickly provide a break and acknowledge him for making a good choice to request a break appropriately. If Jackson does engage in severe problem behaviors to escape the task, he may temporarily be able to avoid the task to maintain safety and order in the classroom. However, responses to remove him from the room should be minimized,

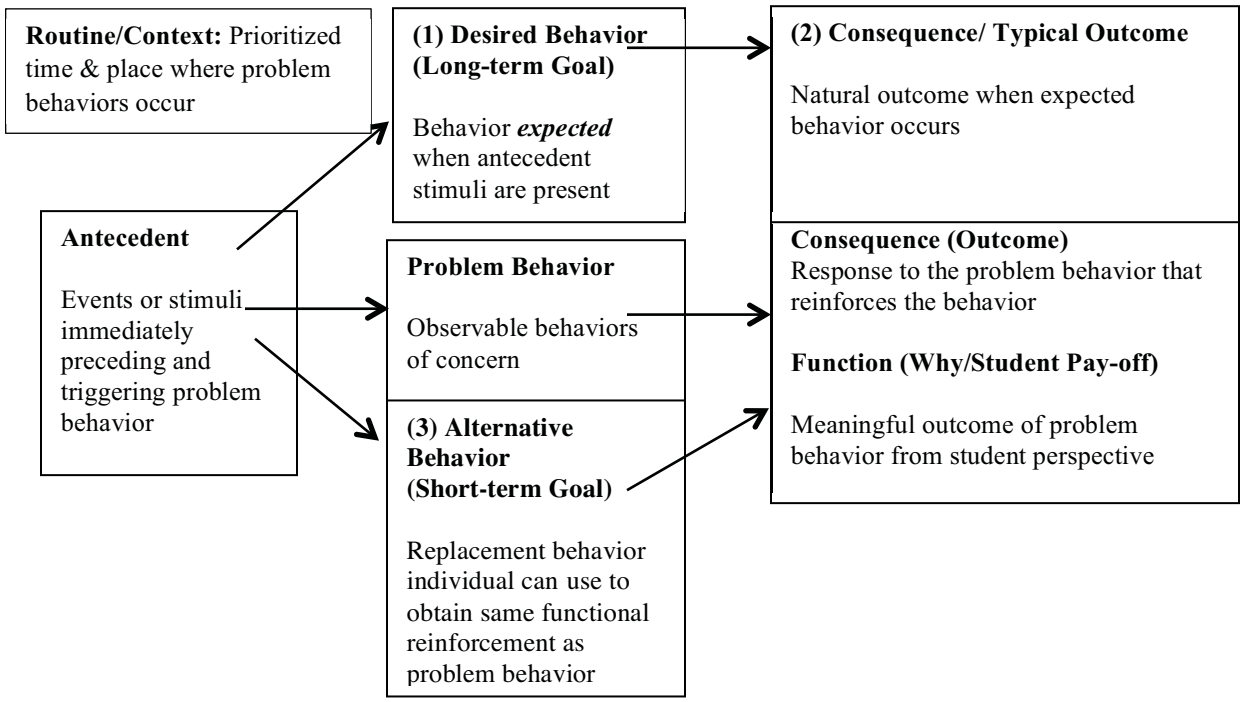
and if he must be removed, the work should be sent with him with the expectation that he completes the work when he calms down. Additionally, Jackson could also be required to come in during recess or after school to complete those tasks to minimize or eliminate his long-term opportunities to escape the task.

In Sophia's case at the earliest signs of off-task behavior (fidgeting, looking around the room), quickly use the visual prompt (limiting the richness of individual verbal attention) to redirect her to quietly raise her hand to request attention. If she does so appropriately, quickly provide teacher attention. If Sophia does not respond, it is important that teacher attention is minimized or eliminated for problem behavior. Instead of chasing Sophia around the room and having a "talk" with her about right and wrong, attention to misbehavior should be limited. In many cases it is not safe for a student to be running around the room, but it is possible to redirect a student in a more impersonal way (no conversation, brief directions, limited eye contact, etc.) that limits attention for problem behavior. In contrast, it is essential that when Sophia is engaging in appropriate behavior she experience rich, high-quality attention so that she clearly learns the difference between the outcomes for desired versus non-desired behavior.

Summary

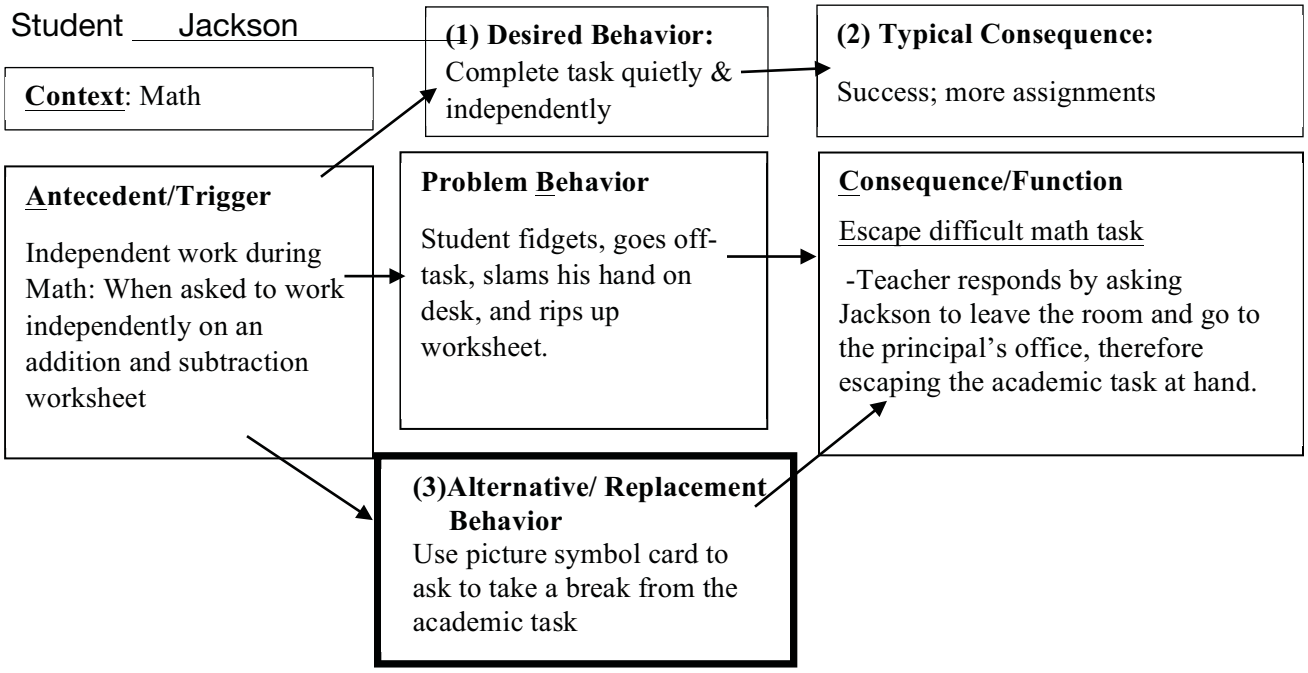
As educators increasingly encounter students with complex academic, social, and emotional needs, it is imperative they have research-based tools that can be appropriately and effectively utilized in unique contexts. The research on the effectiveness of function-based supports is vast, but educators are often missing the "how to" or "practical" strategies drawn from research. This chapter highlights "scaled-down" research-based critical features to consider when developing a

function-based behavior support plan. It illustrates the importance of utilizing the function of a student's behavior to outline prevention, teaching, and consequence strategies synergistically to positively impact student outcomes. As a reference, a list of essential components of behavior interventions presented in the chapter is provided in Figures 1 and 4. Finally, possible antecedent, behavioral teaching, and consequence strategies are presented for the functions of obtaining attention (Table 1) and escaping tasks or stimuli (Table 2).



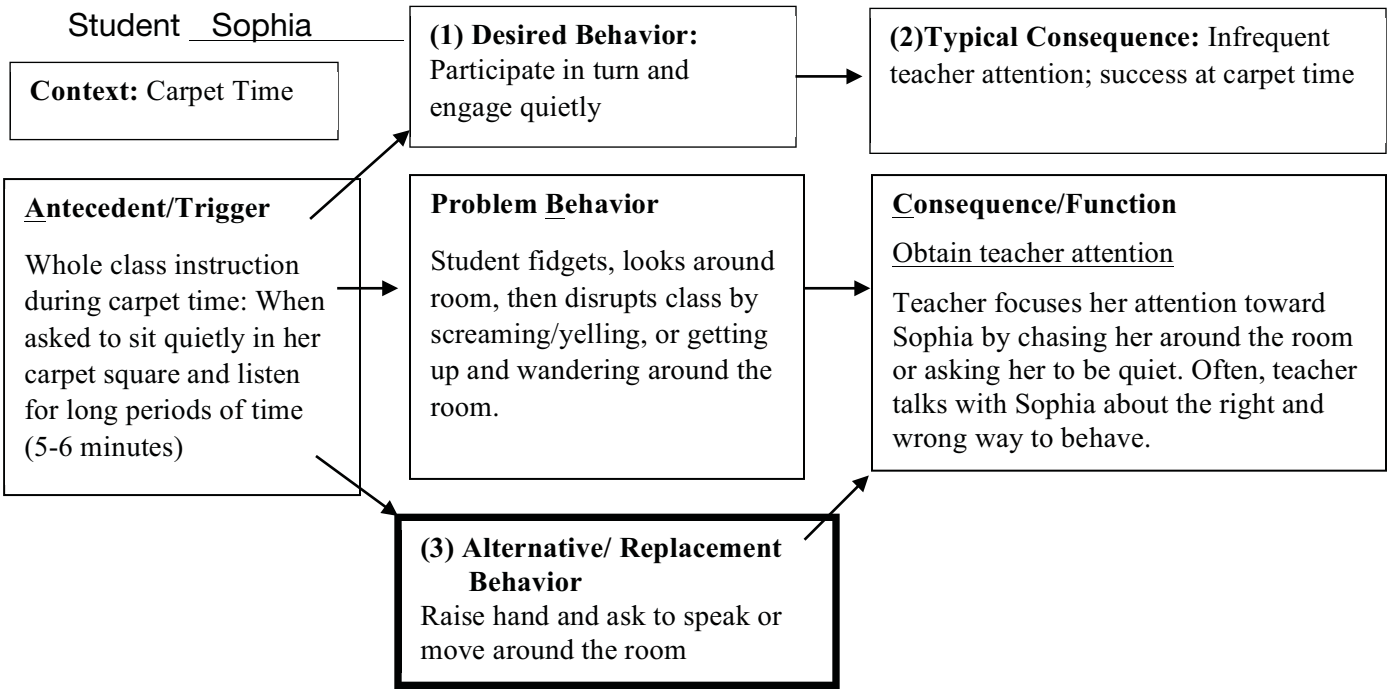
(A) Manipulate Antecedent to prevent problem & prompt alternate/ desired behavior	(B)Teach Behavior Explicitly teach alternate & desired behaviors	Alter Consequences to reinforce alternate & desired behavior & extinguish negative behavior	
		(C) Alt./Expected Behavior	(D) Problem Behavior
Intervention should: □ Directly address the identified antecedent □ Directly address the function of problem behavior	Provide explicit instruction of the alternate behavior(s) that: □ Serves the same function as problem behavior □ Is as easy or easier to do than problem behavior □ Is socially acceptab Explicitly teach skills necessary to engage in desired behaviors or approximations thereof:	Include an intervention to reinforce the: □ Alternative behavior & □ Desired behavior or approximations toward the desired behavior Ensure that reinforcers are valued (use function to guide selection of reinforcers as appropriate) Set up Reinforcement Schedules based on reasonable expectations and timeframes	Prompt the alternative behavior at the earliest sign of problem behavior Eliminate or limit access to reinforcement for engaging in problem behavior

Figure 1. Competing Behavior Pathway with Definitions of Critical Features



(A) Manipulate Antecedent to prevent problem & prompt alternate/desired behavior	(B) Teach Behavior Explicitly Teach Alternate & Desired Behaviors	Alter Consequences to reinforce alternate & desired behavior & extinguish negative behavior	
		(C) Reinforce Alt./Expected Behavior	(D) Problem Behavior
Decrease the difficulty of the math worksheet, intersperse easier addition and subtraction problems with more difficult problems Provide manipulatives and/or stimulus prompts on the numbers as counters (e.g., touchmath) Help Jackson get started with first math problem	Teach student to use picture card or to turn paper over to signal he will take a break from the academic task Teach student to ask for help (using a picture card) on problems he does not understand Teach student to cross out difficult problems he does not want to do and go on to next problem	Student can earn choice time passes after completing so many academic tasks (i.e. 4 completed tasks = 1 choice pass) Reinforce student for asking to take a break with a short 2-minute break from the task	Prompt student to ask to take a break when he begins to display problem behavior Have student spend after-school time on task if he displays problem behavior during class (use visual time timer to show how much time he will owe)

Figure 2. Example of Jackson's Function-Based Support Plan



(A) Manipulate Antecedent to prevent problem & prompt alternate/desired behavior	(B) Teach Behavior Explicitly Teach Alternate & Desired Behaviors	Alter Consequences to reinforce alternate & desired behavior & extinguish negative behavior	
		(C) Reinforce Alt./Expected Behavior	(D) Problem Behavior
Check-in with Sophia during transition to carpet time to provide brief 1:1 attention Make Sophia "teacher's helper" and give her jobs providing teacher interaction Move student's carpet square closer to the teacher so it is easier for the teacher to notice and provide attention for on-task behavior (see Reinforcement strategy)	Teach student to raise her hand and ask to speak with the teacher Provide social skills instruction focused on appropriate adult interactions (e.g. conversation started, eye contact, smiling) and increasing endurance for spans of time with limited attention.	Provide regular frequent attention for on-task behavior Student gets "special teacher time" if she displays appropriate behaviors in class Student gets to talk to teacher when asking appropriately	Prompt student to ask to speak to teacher at earliest signs of disruptive behavior (fidgeting) Have student spend time in the designated "time-out" zone if problem behaviors continue.

Figure 3. Example of Sophia's Function-Based Support Plan

- **Replace problem behavior by teaching a socially acceptable, efficient behavior that allows student to obtain the pay-off/function**
    - An appropriate Replacement Behavior:
        - Serves the same function as the problem behavior
        - Is easier to do & more efficient than the problem behavior
        - Is socially acceptable

- **Prevent problem behaviors by directly addressing triggers & prompting replacement behaviors based on the function of behavior**
    - Prevention Interventions should:
        - Directly address the identified antecedent/trigger
        - Directly address the function of the problem behavior
        - Remind the student to use the replacement behavior

- **Reinforce replacement & desired behaviors based on function/pay off for the student**
    - Immediately reinforce the use of replacement behaviors
    - Reinforce desired behaviors by:
        - Using reasonable goals & expectations
        - Using a reasonable time frame for achieving goals
        - Ensure that the reinforce is valued (matches function)

- **Redirect problem behaviors by quickly & effectively redirecting student to replacement behavior**
    - At the earliest sign of problem behavior:
        - Redirect or prompt student to the replacement behavior

- **Minimize Reinforcement by ensuring that problem behaviors do NOT pay off for the student (i.e. does not result in the function of behavior)**
    - When problem behaviors occur, identify a response that does not result in the desired pay-off for the student.

Figure 4. Essential Components for a Behavior Intervention Plan (from Loman, Strickland-Cohen, & Borgmeier, 2013).

Table 1. Possible ABC Strategies by Behavioral Function: Obtaining Attention
***Strategies should be individualized for each student**

Function of Behavior	***Antecedent Strategies*** ***Prevent problem behavior & support desired behavior*** ***Make problem behaviors irrelevant***	***Behavior Teaching Strategies*** ***Teach replacement & desired behavior that gets results more quickly or easily to make the problem behavior inefficient.***	***Consequence Strategies*** ***Change consequences that have supported rather than eliminated the problem behavior.*** ***Do NOT allow the negative behavior to pay off for the student, put the negative behavior on extinction*** ***Reward appropriate behavior to make the problem behavior ineffective.***
Attention Seeking	***Prevention (give attention early for positive behaviors)*** ***Check-in – provide adult attention immediately upon student arrival*** ***Give student leadership responsibility or a class "job" that requires the student to interact w/ staff*** ***Place student in desk where they are easily accessible for frequent staff attention*** ***Give student frequent intermittent attention for positive or neutral behavior*** ***Pre-correct - Frequently & deliberately remind student to raise their hand and wait patiently if they want your attention***	***Teach student more appropriate ways to ask for adult attention*** ***Identify and teach specific examples of ways to ask for attention*** ***-Raise hand and wait patiently for teacher to call on you*** ***-likely need to differentiate (large group, small group, work time, etc.)***	***Respond quickly if student asks appropriately for adult attention*** ***Give the student frequent adult attention for positive behavior*** ***Student earns 'lunch w/ teacher' when student earns points for paying attention in class & asking appropriately for attention*** ***Eliminate/minimize the amount of attention provided to a student for engaging in problem behavior*** ***--Limit verbal interaction – create a signal to prompt the student to stop the problem behavior*** ***--Avoid power struggles***

Table 2. Possible ABC Strategies by Behavioral Function: Avoiding or Escaping Tasks/Stimuli*Strategies should be individualized for each student

Function of Behavior	*Antecedent Strategies*	*Behavior Teaching Strategies*	*Consequence Strategies*
Avoid Task	***Prevention (modify task or provide support)*** ***Modify assignments to meet student instructional/skill level (adjust timelines, provide graphic organizers, break in to smaller chunks, etc.)*** ***Assign student to work with a peer*** ***Provide additional instruction/support*** ***Provide visual prompt to cue steps for completing tasks student struggles with*** ***Provide additional support focused on instructional skills (Homework Club, Study Hall, etc.)*** ***Pre-Teaching content*** ***Pre-Correct - Frequently & deliberately remind student to ask for help***	***Teach student more appropriate ways to ask for help from teacher or peers*** ***Provide additional instruction on skill deficits*** ***<u>Identify and teach specific examples of ways to ask for help</u>*** ***Raise hand and wait patiently for teacher to call on you*** ***Teach student to use a break card*** ***-likely need to differentiate (large group, small group, work time, etc.)*** ***Provide academic instruction/support to address student skill deficits*** ***-More focused instruction in class*** ***- Additional instructional group*** ***- Special Education support for academic deficit*** ***- additional support and practice at home*** ***-additional assessment to identify specific skill deficits***	***Respond quickly if student asks for help or for a break*** ***Reward students for on task, trying hard, work completion & for asking for a break or help appropriately*** ***Eliminate/minimize the amount of missed instructional time or work provided to a student for engaging in problem behavior*** ***--However, need to make sure student is capable of doing work… or provide support/instruction so student can complete the work***

References

Blood, E., & Neel, R.S. (2007). From FBA to implementation: A look at what is actually being delivered. *Education and Treatment of Children, 30* (4), 67–80.doi: 10.1353/etc.2007.0021

Borgmeier, C., Loman, S. L., Hara, M., & Rodriguez, B. J. (2014). Training school personnel to identify interventions based on functional behavioral assessment. *Journal of Emotional and Behavioral Disorders, 22*(2), 1–12. doi: 10.1177/1063426614528244

Browning-Wright, D., Mayer, G. R., Cook, C. R., Crews, S. D., Kraemer, B. R., & Gale, B. (2007). Effects of training using the Behavior Support Plan Quality Evaluation Guide to improve positive behavior support plans. *Education and Treatment of Children, 30,* 89–106. doi: 10.1353/etc.2007.0017

Carr, E. G. (1997). The evolution of applied behavior analysis into positive behavior support. *The Association for Persons with Severe Handicaps, 22*(4), 208–209. doi: 10.1177/109830070200400102

Carr, E. G., Dunlap, G., Horner, R.H., Koegel, R.L., Turnbull, A.P., Sailor, W., ...Fox, L. (2002). Positive behavior support: Evolution of an applied science. *Journal of Positive Behavior Interventions, 4* (1), 4–16. doi: 10.1177/109830070200400102

Carr, E. G., Levin, L., McConnachie, G., Carlson, J. I., Kemp, D. C., & Smith, C. E. (1994). *Communication-based intervention for problem behavior*. Baltimore: Paul H. Brookes.

Carr, J. E., Coriaty, S., Wilder, D. A., Gaunt, B. T., Dozier, C. L., Britton, L. N., . . . Reed, C. L. (2000). A review of "noncontingent" reinforcement as treatment for the aberrant behavior of individuals with developmental disabilities. *Research in Developmental Disabilities, 21*, 377–391. doi: 10.1016/S0891-4222(00)00050-0

Carter, E. W., Cushing, L. S., Clark, H. M., & Kennedy, C. H. (2005). Effects of peer support interventions on students' access to the general curriculum and social interactions. *Research and Practice for Persons with Severe Disabilities, 30,* 15–25. http://dx.doi.org/10.2511/rpsd.30.1.15

Chandler, L. K., & Dahlquist, C. M. (2010). *Functional assessment: Strategies to prevent and remediate challenging behaviors in school settings.* Upper Saddle River, NJ: Merrill.

Cooper, J. O., Heron, T. E., & Heward, W. L. (2007). *Applied behavior analysis* (2nd ed.). Upper Saddle River, NJ: Pearson.

Crone, D. A., & Horner, R. H. (2003). *Building positive behavior support systems in schools: Functional behavioral assessment.* New York: Guilford.

Durand, V.M. (1990). *Severe behavior problems: A functional communication approach*. New York: Guilford.

Ebanks, M. E., & Fisher, W. W. (2003). Altering the timing of academic prompts to treat destructive behavior maintained by escape. *Journal of Applied Behavior Analysis, 6*(3), 355–359. doi: 10.1901/jaba.2003.36-355

Ervin, R. A., Radford, P. M., Bertsch, K., Piper, A. L., Ehrhardt, K. E, & Poling A. (2001). A descriptive analysis and critique of the empirical literature on school-based functional assessment. *School Psychology Review, 30*(2), 193–210.

Fox, J. J., & Gable, R. A. (2004). Functional behavioral assessment. In R.B. Rutherford, M. M. Quinn, & S. R. Mathur (Eds.), *Handbook of research in emotional and behavioral disorders* (pp. 143–162). New York: Guilford.

Haring, N. (1988). A technology for generalization. In N. Haring (Ed.), *Generalization for students with severe handicaps: Strategies and solutions* (pp. 5–12). Seattle: University of Washington Press.

Horner, R. H. (1994). Functional assessment: Contributions and future directions. *Journal of Applied Behavior Analysis, 27*(2), 401–404. doi: 10.1901/jaba.1994.27-401

Horner, R. H., & Day, H. M. (1991). The effects of response efficiency on functionally equivalent competing behaviors. *Journal of Applied Behavior Analysis, 24*(4), 719–32. doi: 10.1901/jaba.1991.24-719

Ingram, K., Lewis-Palmer, T., & Sugai, G. (2005). Function-based intervention planning comparing the effectiveness of FBA function-based and non-function-based intervention plans. *Journal of Positive Behavior Interventions*, *7*(4), 224–236.doi: 10.1177/10983007050070040401

Kern, L., Choutka, C. M., & Sokol, N. G. (2002). Assessment-based antecedent interventions used in natural settings to reduce challenging behavior: An analysis of the literature. *Education & Treatment of Children, 25*(1), 113–130.

Kern, L., & Clarke, S. (2005). Antecedent and setting event interventions. In L.M. Bambara & L. Kern (Eds.), *Individualized supports for students with problem behaviors*. New York: Guilford.

Kern, L., & Dunlap, G. (1998). Curriculum modifications to promote desirable classroom behavior. In J. K. Luiselli & M. J. Cameron (Eds.), *Antecedent control: Innovative approaches to behavioral support* (pp. 289–308). Baltimore: Paul H. Brookes Publishing Co.

Kern, L., Gallagher, P., Starosta, K., Hickman, W., & George, M. L. (2006). Longitudinal outcomes of functional behavioral assessment-based intervention. *Journal of Positive Behavior Interventions, 8,* 67–78. doi: 10.1177/10983007060080020501

Koegel, R. L., & Koegel, L. K. (1990). Extended reductions of stereotypic behavior of students with autism through a self-management treatment package. *Journal of Applied Behavior Analysis, 23,* 119–127. doi: 10.1901/jaba.1990.23-119

Loman, S.L. (2009). ABC Recording Form. In Practical FBA: Participants guidebook to the practical functional behavioral assessment training manual for school-based personnel. www.pbis.org.

Loman, S.L., Rodriguez, B.J. & Borgmeier, C. (2014). Critical features of training practitioners to conduct function based interventions: From theory to professional development to practice. *Research and Practice in the Schools*.

Loman, S.L., Strickland-Cohen, M.K., & Borgmeier, C. (2013). *Basic FBA to BSP: Participant's Guide*. *www.pbis.org*.

Mace, F. C., Hock, M. L., Lalli, J. S., West, B. J., Belfiore, P., Pinter, E., & Brown, D. K. (1988). Behavioral momentum in the treatment of noncompliance. *Journal of Applied Behavior Analysis, 21*(2), 123–141. doi: 10.1901/jaba.1988.21-123.

March, R.E. Horner, R.H., Lewis-Palmer, T., Brown, D., Crone, D.A., Todd, A.W., & Carr, E.G. (2000). Functional assessment checklist for teachers and staff (FACTS). Eugene: University of Oregon.

Morrison, K., & Rosales-Ruiz, J. (1997). The effect of object preferences on task performance and stereotypy in a child with autism. *Research in Developmental Disabilities, 18,* 127–137. doi: 10.1016/S0891-4222(96)00046-7

Munk, D. D., & Repp, A. C. (1994). The relationship between instructional variables and problem behavior: A review. *Exceptional Children, 60*(5), 390–401.

O'Neill, R. E., Horner, R. H., Albin, R. W., Sprague, J. R., Storey, K., & Newton, J. S. (1997). *Functional assessment and program development for problem behavior: A practical handbook*. Pacific Grove, CA: Brooks/Cole Publishing.

Petscher, E. S., Rey, C., & Bailey, J. S. (2009). A review of empirical support for differential reinforcement of alternative behavior. *Research in Developmental Disabilities, 30*(3), 409–425. doi: 10.1016/j.ridd.2008.08.008

Scott, T. M., Alter, P. J., & McQuillan, K. (2010). Functional behavior assessment in classroom settings: Scaling down to scale up. *Intervention in School and Clinic*, *46* (2), 87–94. doi: 10.1177/1053451210374986

Sprague, J. R., & Horner, R. H. (1999). Low frequency, high intensity problem behavior: Toward an applied technology of functional analysis and intervention. In A. C. Repp & R. H. Horner (Eds.), *Functional analysis of problem behavior: From effective assessment to effective support* (pp. 98–116). Belmont, CA: Wadsworth Publishing.

Strickland-Cohen, M. K., & Horner, R. H. (in press). Typical school personnel developing and implementing basic behavior support plans. *Journal of Positive Behavioral Interventions*.

Van Acker, R., Boreson, L., Gable, R., & Potterton, T. (2005). Are we on the right course? Lessons learned about current FBA/BIP practices in schools. *Journal of Behavioral Education*, *14*(1), 35–56. doi:10.1007/s10864-005-0960-5

Wilde, L. D., Koegel, L. K., & Koegel, R. L. (1992). *Increasing success in school through priming: A training manual*. Santa Barbara: University of California.

Wilder, D. A., Harris, C., Reagan, R., & Rasey, A. (2007). Functional analysis and treatment of noncompliance by preschool children. *Journal of Applied Behavior Analysis, 40,* 173–177. doi: 10.1901/jaba.2007.44-06